

PART SPEC
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DESCRIPTION: INVERTER,SIC 1803

SPECIFICATION: 11.5V~14.5V,,48KHZ,0 +50 ,BULK



SECTION : VD R&D

[illegible][illegible][illegible]

DRAWN:	7202	DOC. NO.:	BN44-00041ACB
MYUNG-SOO NA		REF. NO.:	

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APPROVED:		CO., LTD.		
BYUNG-JU KWAK	5469	(All Rights Reserved.)	SIZE: A4	PAGE: 1

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REV.	DATE	CONTENTS	DRAWN	APPROVED
00	2001.11.08	initial release	M.S NA	B.J.KWAK
01	2002.05.06	REVISION BY ECO NO BN0200203CB ( CHANGED CAP : SMD MLCC --> AMMO CAP ) , ADD ADHESIVE	M.S NA	B.J.KWAK
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## PART SPEC

## 1.0 SCOPE

1.1 THIS DOCUMENT DEFINES FOR INVERTER, SIC1803,11.5~14.5V,48KHz

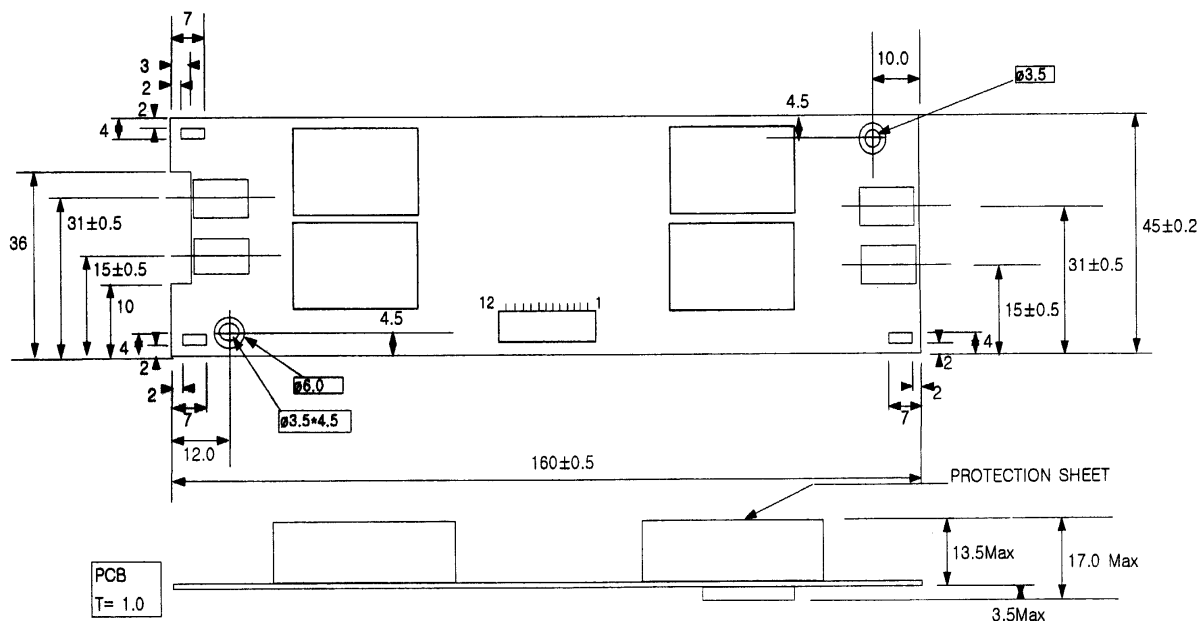
## 1.2 USAGE : BACK LIGHT 4 LAMP CCFL DRIVER INVERTER FOR ES17NS

1.3 TYPE OF PACKAGE :

#### 1.4 COATING

## 2.0 RELATED DOCUMENTS

### 3.0 DIMENSIONS



## 4.0 REQUIREMENTS

#### 4.1 MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V <sub>in1</sub>	input voltage1	11.5 ~44.5	V
V <sub>in2</sub>	input voltage2	4.9 ~5.1	V
T <sub>opr</sub>	operating temperature	0 +50	
T <sub>stg</sub>	storage temperature	-30 +80	
H <sub>op</sub>	operating/storage humidity	10 ~90	%RH

## 4.2 CONTROL SIGNAL

PIN NO.	SYMBOL	STATUS	ACTION	REMARKS
CN1 #4	BKLT -ON	HIGH	LAMP (CCFL) -ON	2.4 -5.25V
		LOW	LAMP (CCFL) -OFF	0.8V MAX.



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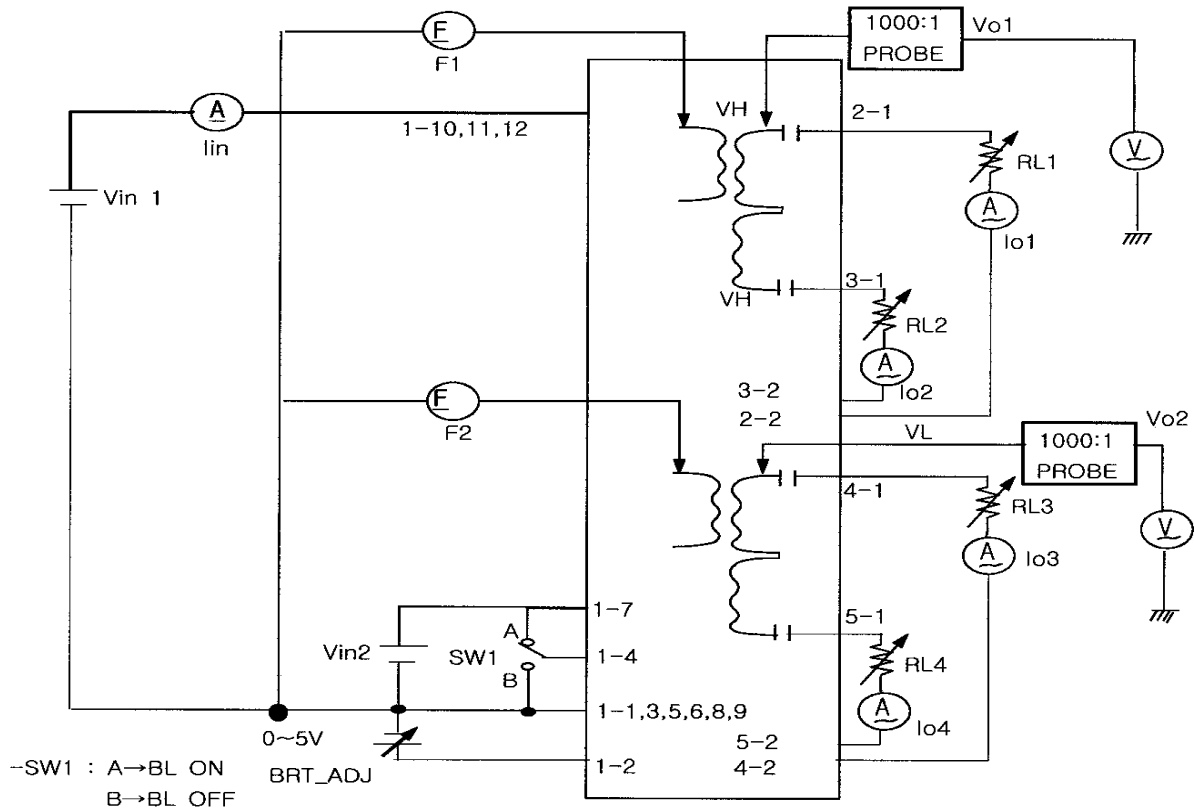
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### 4.3 TEST CIRCUIT



### 4.4 INPUT/OUTPUT CHARACTERISTICS

ITEM	SYMBOL	CONDITION				SPECIFICATION			UNIT
		Vin1 (V) (DC- IN)	Vin2 (V)	BRT-ADJ	RL (kΩ)	MIN	TYP	MAX	
OUTPUT CURRENT	Io1,2(max)	11.5 ~44.5	5	0V	120 ± 0.5	6.1	6.7	7.2	mArms
	Io1,2(min)	11.5 ~44.5	5	5V	120 ± 0.5	1.5	2.5	4.0	
	Io3,4(max)	11.5 ~44.5	5	0V	120 ± 0.5	6.1	6.7	7.3	
	Io3,4(min)	11.5 ~44.52	5	5V	120 ± 0.5	1.5	2.5	4.0	
INPUT CURRENT	Iin	14	5	0V	120 ± 0.5		1.9	2.2	ADC
DIMMING FREQUENCY	F(1)	14	5	0V	120 ± 0.5	525	535	545	kHz
FREQUENCY	F(1)	14	5	0V	120 ± 0.5	41	48	55	kHz
	F(2)	14	5	0V	120 ± 0.5	41	48	55	

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## 5.0 FUNCTIONAL PIN DESCRIPTION

### 5.1 CN1 CONNECTOR 53261-1290(MOLEX)

PIN NO	SYMBOL	REMARK
2	BRT_ADJ	0 ~ 5V
1,3,5,6,8,9	GND	GND
4	BL ON/OFF	CCFL Drive SIGNAL(Active HIGHT)
7	VDD	5V
10,11,12	DC- IN	DC INPUT Power(14V)

### 5.2 CN2 CONNECTOR: SM02B-BHS-1-TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT 1
2	COLD	LOW

### 5.3 CN3 CONNECTOR :SM02B-BHS-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT 1
4	COLD	LOW

### 5.4 CN4 CONNECTOR :SM02B-BHS-1TB(JST)

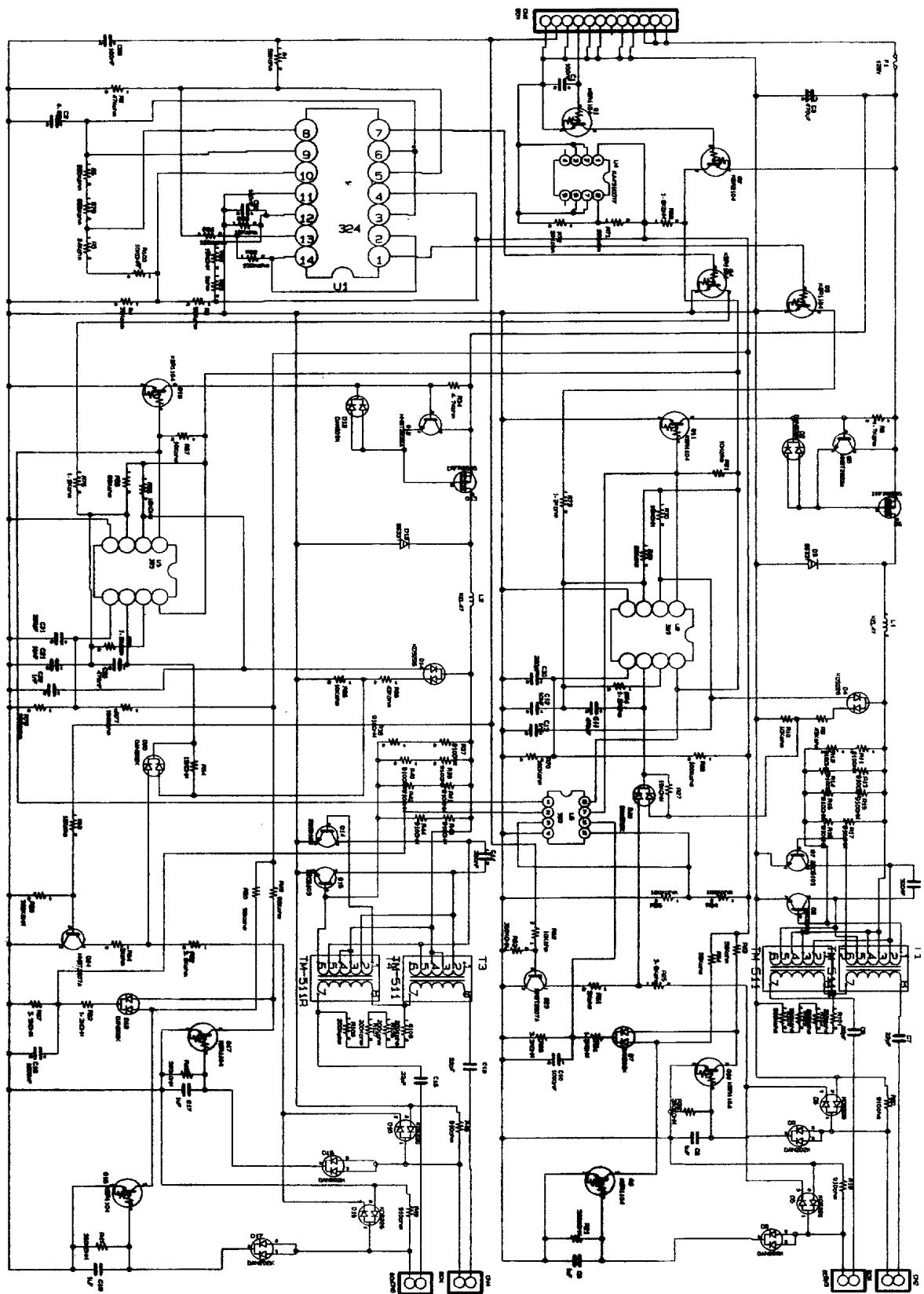
PIN NO	SYMBOL	REMARK
1	HOT	HIGHT 1
4	COLD	LOW

### 5.5 CN5 CONNECTOR :SM02B-BHS-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT 1
4	COLD	LOW

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## 6.0 INTERNAL CIRCUIT DIAGRAM



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## 7.0 PARTS LIST

SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
U4	IC	KA431CD	FAIRCHILD	TL431CD	SGS
U1	"	KA324	FAIRCHILD	BA10324	ROHM
		KIA324	KEC	LM324	T.I
U2,3,5	IC	KA393	FAIRCHILD	BA10393	ROHM
		KIA393	KEC	LM358	T.I
Q1,3,4,9,10,11,16,17, Q18	TR	KRC104S	KEC	KSR1104	SEC
Q2	"	KRA104S	KEC	KSR2104	SEC
Q5,12	"	KST2222A	FAIRCHILD	KTN2222AS	KEC
Q23,24	"	KST2907A	FAIRCHILD	KTN2907AS	KEC
Q6,13	TR	IRFR5505	FAIRCHILD	SFR9034	F.C
	"	2SJ246	HITACHI		
Q7,8,14,15	TR	2SC5103	ROHM	2SD1803	SANYO
	"	KTC5103D	KEC		
D2,7,8,9,10,12,17,18, 19,20	DIODE	KDS184	KEC	DAN202K	ROHM
		SDS2838	AUK		
D3,13	DIODE	SS33&SS34	G.I	SK33/SK34	PANJIT
D22	"	KDS181	KEC	DAP202K	ROHM
D4,5,6,14,15,16	"	KDS226	KEC	DAN217	ROHM
	"	SDS7000	AUK		
C3	C - ELEC	LXZ470uF/25 V	SAMYUNG		
C5,14	FILM	MPPS2A304K	SUNGHO	MMX-E-2A304K	HITACHI
C6,7,15,16	C - CERA	C4520SL3FD220K	TDK	HCSL3F220K	NETRONTech
C2	MLCC	CL21B681KBN	SEMCO		
C13,22	"	CL21C102JBN	"		
C1,23,50	"	CL21C104KBN			
C12,21	"	CL21C103KBN			
C8,9,10,17,18,19	MLCC	CL21F105ZAN	"		
C11,20	"	CL21B474KON			
C30,31	"	CL21B221JBN			
R27,30,54,56,94	CHIP - R	RC2012J153	SEMCO		
R2	"	RC2012J473	"		
R4	CHIP - R	RC2012J393	SEMCO		
R73,74,75,76	"	RC2012J122	"		
R5	"	RC2012J243	"		
R6,79	"	RC2012J684	"		
R19,20,45,46,11~18, 37~44	"	RC3216J911	"		
R10,36,62,65,31,57,95	"	RC2012J103	"		
R9,35	"	RC2012J433	"		

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SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
R21,22,47,48,63,66	"	RC2012J364			
R1,3,23,24,49,50,55	"	RC2012J563	"	"	
R81,82	"	RC2012J135	"	"	
R86,87	"	RC2012J335	"	"	
R25,52	"	RC2012J362	"	"	
R69	"	RC3026J182	"	"	
R28,70,77,78,84,85,91,92	"	RC2012J104	"	"	
R71,72		RC2012J203			
R101~108		RC3026J204			
R61,64		RC2012J302			
R100	VR	10kΩ			
T1,4	TRANS	TM511R	NAMYANG	TM511R	DAESUNG
	"	TM511R	KYUNGIN		
T2,3	TRANS	TM511	NAMYANG	TM511	DAESUNG
	"	TM511	KYUNGIN		
L1,2	COIL	KEL47	KYUNGIN	KEL47	NAMYANG
F1	FUSE	SSQ3	BEL	451003	LITTEL
CN1	CONNECTOR	12505WR - 12A00	YEONHO	53261 - 1290	MOLEX
CN2,3,4,5	CONNECTOR	35001WR - 02P	YEONHO	SM02B - BHS	JST
PCB	PCB	SIC1803 REV.02	YOUNGEUN	SIC1803 REV02	KIJOO
ADHESIVE	ADHESIVE	KE40RTV	SHINETSU		

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## 8.0 RELIABILITY SPECIFICATION

NO	ITEM	CONDITION AND METHOD
1	HIGH TEMPERATURE STORAGE TEST	TEMP.;70 DURATION: 500 hrs
2	LOW TEMPERATURE STORAGE TEST	TEMP.;40 DURATION: 500 hrs
3	HIGH TEMPERATURE HIGH HUMIDITY STORAGE TEST	TEMP.;40 ,HUMIDITY:95%RH DURATION: 500 hrs
4	HIGH TEMPERATURE HIGH HUMIDITY OPERATION TEST	TEMP.;40 ,HUMIDITY:95%RH DURATION: 1000 hrs
5	THERMAL SHOCK TEST	TEMP;-30 70 , 250 CYCLE (30 MINUTE), (30 MINUTE)
6	VIBRATION TEST	AMPLITUDE;1.5mm,FEEQUENCY;10 ~55Hz, POSITION; TREE PERPENDLCULAR PLANES,DURATION;1000 hrs
7	HIGH TEMPERATURE OPERATION TEST	TEMP;50 DURATION;72 hrs
8	LOW TEMPERATURE OPERATION TEST	TEMP; 0 DURATION;72 hrs

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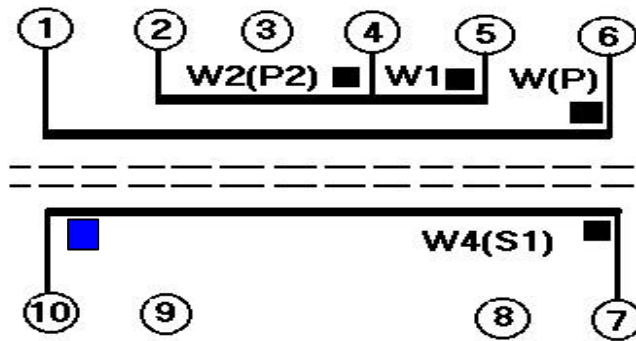


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## 9.0 DETAIL SPECIFICATION FOR KEY PARTS

### 9.1 TRANS (TM-511,TM-511R)

#### 9.1.1 WINDING SPEC & ELECTRICAL CHARACTERISTICS



SYMBOL& WINDING	WIRE	TURNS	INDUCTANCE	CONDITION
W1 (#5-#4)	2UEW 0.30 ϕ	8	#5-#2: 41.0uH ±10%	AT 1KHZ 1Vrms
W2 (#4-#2)	2UEW 0.30 ϕ	8		
W3 (#6-#1)	2UEW 0.15 ϕ	2	0.6uH ref.	
W4 (#7-#10)	F UEW 0.04 ϕ	1440(288*5)	300mH ± 10%	

#### 9.1.2 MATERIAL LIST (TM-511,TM-511R)

NO.	COMPONENT	MANUFACTURE COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	UL FILE NO.
1	CORE	SAM SUNG CORNING CO., LTD.	SL-2 EEA 17.7A		
2	BOBBIN	JO KWANG ELECTRONICS CO., LTD.	(94V-0) SB EE18-2 LCP UL	SUMITOMO CHEMICAL CO., LTD.	E 54705 (M)
3	WIRE	DONG YANG ELECTRONICS IND CO., LTD.	2 EW 0.15Ø (AWG #35)		E 102761(S)
4			2 UEW 0.30Ø (AWG #29)		
5			F UEW 0.04Ø (AWG #44)		
6	INSULATION TAPE	DUCK SUNG TAPE CO., LTD. (Cat No. DTS-204)	POLYESTER FILM TAPE 0.025 mm X 13.5 mm		E 105147(S)
7	CORE FIXING TAPE		POLYESTER FILM TAPE 0.025 mm X 5.0 mm		
8	INSULATOR	SKC LTD	PETP FILM (SR55) 0.10 mm(T) MIN		E 74359 (S)
9	WAX	MICRO WAX 180	MOBIL or ESSO		



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## 9.2 DETAIL MATERIAL LIST FOR KEY PARTS ( SAFETY )

SYMBOL	NAME	TYPE NO.	MANUFACURER	DESCRIPTION
FI	FUSE	451003	LITTELFUSE INC	UL FILE NO :E10480 CSA FILE NO :LR29862
		SSQ3	BEL	UL FILE NO :E20624 CSA FILE NO :LR39772
PCB	PRINTED WIRING BOARD	FR-4	KIJOO	UL FILE NO :E111636
			YOUNG EUN ELECTRONICS	UL FILE NO:E173507
CN1	CONNECTOR	53261 - 1290	MOLEX	NYLON 4/6 UL94V-0
	"	12505WR - 12A00	YEONHO	"
CN2,3 CN4,5	CONNECTOR	SM02B-BHS	JST	PA46 UL94V-0
	"	35001WR - 02P	YEONHO	"
	INSULATOR	PC	TEIJIN CHEMICALS	UL FILE NO:E50075(M)
T1,4	TRANSFORMER	TM-511R	DAISUNG TELECOMMUNICATIONS	CLASS A (105 de.C) SEE TRANS SPEC
			NAMYANG ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			KYUNGIN ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			DAISHIN DENKEN	CLASS A (105 de.C) SEE TRANS SPEC
T2,3	TRANSFORMER	TM-511	DAISUNG TELECOMMUNICATIONS	CLASS A (105 de.C) SEE TRANS SPEC
			NAMYANG ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			KYUNGIN ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			DAISHIN DENKEN	CLASS A (105 de.C) SEE TRANS SPEC

## 10.0 PACKING REQUIREMENTS

BULK

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SAMSUNG P/N	VENDOR #1 P/N	VENDOR #2 P/N	VENDOR #3 P/N	VENDOR #4 P/N
BN44-00041A	SIC1803			
VENDOR #1	SAMSUNG ELECTRO-MECHANICS CO.,LTD.			
VENDOR #2				
VENDOR #3				
VENDOR #4				
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